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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/742,428	12/22/2000	Naoki Kachi	040679/1191	8035

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WASHINGTON, DC 20007

EXAMINER
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LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/742,428

Applicant(s)

KACHI ET AL.

Examiner

Jennifer A. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 30-39 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-28 and 30-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-28 and 30-39 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2-22-05.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 28, 2006 has been entered.
2. Claim 29 has been cancelled. Claims 33-39 are newly added. Claims 1-24 are withdrawn from consideration. Claims 25-28 and 30-39 are under consideration.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 25-28 and 30-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 25 and 33, it is unclear as to where the limitation, "said multilayered catalyst system comprising a first catalyst layer disposed on the HC trap layer and a second catalyst layer disposed on the HC trap layer," (lines 6-8) finds support in the specification and drawings. For instance, the Examiner is only aware of the teaching of, "a first catalyst layer

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disposed on the HC trap layer and a second catalyst layer *disposed on the first catalyst layer*,"  
(see specification, page 3, lines 30-33).

***Claim Rejections - 35 USC § 102 and § 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 25-27 and 33-35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Noda et al. (EP 0 782 880).

Regarding claims 25, 26, 33 and 34, Noda et al. discloses a catalytic converter comprising a carrier (i.e., a monolithic carrier; page 6, line 54 to page 7, line 48); and a layered structure (i.e., a catalyst-adsorbent layer) disposed on the carrier, the layered structure including:

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a HC trap layer disposed on the carrier (i.e., an adsorbent comprising a zeolite; page 5, line 13 to page 6, line 43); and a catalyst system disposed on the HC trap layer (page 3, line 43 to page 5, line 8).

In particular, the catalyst system may comprise a multilayered catalyst system (see page 9, line 54 to page 10, line 6, wherein the carrier is coated with first, second and third layers) including,

a first catalyst layer (i.e., the “Second layer” in Examples 14, 16, 17, 20, 83, 88, 93, 98 and Comparative Example 1 in Tables 4, 5 and 8-10) disposed on the HC trap layer (i.e., the “First layer” in said Examples); and

a second catalyst layer (i.e., the “Third layer” in said Examples) disposed on said first catalyst layer on the HC trap layer;

wherein the first and second catalyst layers (i.e., the “Second layer” and “Third layer”) form a dual-layered catalyst system disposed on the HC trap layer such that HC released from the trap layer is purified by both the first and second catalyst layers (i.e., the construction would be similar to that illustrated in Fig. 1(E)); wherein the first and second catalyst layers comprise noble metals, respectively (e.g., Pt, Pd and Rh are used in said Examples; see also page 3, lines 43-46); and wherein the weight per volume of noble metal present in the second catalyst layer (i.e., the “Third layer”) is greater than the weight per volume of noble metal present in the first catalyst layer (i.e., the “Second layer”), and hence, the second catalyst layer is inherently controlled to be active earlier than the catalyst noble metal present in the first catalyst layer. (In each instance of said Examples, the noble metal loading (g/ft<sup>3</sup>) for the “Third layer” is greater than the noble metal loading for the “Second layer”).

Each of said Examples structurally read on the claims. Additionally, it would have been

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obvious for one of ordinary skill in the art at the time the invention was made to select one of the above Examples for a catalytic converter in the apparatus of Noda et al., on the basis of suitability for the intended use and absent showing any unexpected results thereof, in order to obtain a desired degree of purification for a given exhaust stream.

Regarding claims 27 and 35, as best understood, the first catalyst layer (i.e., the "Second layer") comprises a first washcoat, and the second catalyst layer (i.e., the "Third layer") comprises a second washcoat, wherein a mass ratio of the noble metal present in the second catalyst layer to that in the second washcoat is higher than a mass ratio of the catalyst noble metal present in the first catalyst layer to that in the first washcoat (see Tables 4, 5 and 8-10; see also page 9, line 55 to page 10, line 6).

5. Claims 28 and 36 are rejected under 35 U.S.C. 103(a) as obvious over Noda et al. (EP 0 782 880) in view of Wan (US 5,057,483).

Noda et al. discloses that the catalyst layers may comprise a noble metal such as Rh (see page 3, lines 43-47). Although the Examples cited above do not specifically include an embodiment wherein the second catalyst layer (i.e., the "Third layer") comprises rhodium, disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). Also, a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." *In re Gurley*, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the multilayered catalyst system of Noda et al. to comprise rhodium in the second catalyst layer, in order to obtain

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a desired exhaust purification performance, because the use of rhodium in the second layer of a dual layered catalyst system is conventionally known in the art of exhaust gas purification. Wan further evidences that the use of multilayered catalyst systems having a rhodium component in the outermost layer (i.e., the second coat; column 8, line 35 to column 11, line 35).

6. Claims 30, 31, 37 and 38 are rejected under 35 U.S.C. 103(a) as obvious over Noda et al. (EP 0 782 880).

Regarding claims 30 and 37, the specific amount of washcoat in each catalyst layer is not considered to confer patentability to the claim because the specific amount of washcoat in each catalyst layer would have been considered a result effective variable by one having ordinary skill in the art. Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to routinely optimize the amount of washcoat in each catalyst layer to obtain the desired exhaust purification thereof, *In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980), and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges merely involves routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claims 31 and 38, Noda et al. discloses that the first and second layers (i.e., the "Second layer" and the "Third layer" in the Examples) may each comprise promoters (e.g., cerium; see page 4, line 49 to page 5, line 12; Examples 17 and 20). The specific amount of promoter in each catalyst layer, however, is not considered to confer patentability to the claim because the specific amount of promoter in each catalyst layer would have been considered a result effective variable by one having ordinary skill in the art. Accordingly, it would have been obvious for one of ordinary skill in the art at the time the invention was made to routinely

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optimize the amount of promoter in each catalyst layer to obtain the desired exhaust purification thereof, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges merely involves routine skill in the art. *In re Aller*, 105 USPQ 233.

7. Claims 32 and 39 are rejected under 35 U.S.C. 103(a) as obvious over Noda et al. (EP 0 782 880) in view of Patil et al. (US 5,125,231).

Noda et al. discloses that the honeycomb structure is preferably coated with a heat-resistant metal-oxide on the partition walls and the pore surfaces, i.e., a base coat layer (see page 7, lines 22-23). Although Noda et al. does not state the particular coating material to be selected, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select one of alumina and silica as a main component for the basecoat in the apparatus of Noda et al., on the basis of suitability for the intended use thereof, because alumina and silica are conventionally known in the art as suitable materials for forming coatings on catalyst carriers. It is further well known that alumina enables a high specific surface area on carriers for the subsequent coating of catalysts, etc., as evidenced by Patil et al. (see column 5, lines 9-46).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163



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USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 25-28 and 30-39 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 6,503,862 in view of Ishii et al. (EP 918 145) and Frestad et al. (US 4,975,406).

U.S. '862 claims a catalytic converter comprising:

a carrier (i.e., "a monolithic support" in claim 1); and

a layered structure disposed on the carrier, the layered structure including:

a HC trap layer disposed on the carrier (i.e., "a second layer containing hydrocarbon adsorbent" in claim 1); and

a multilayered catalyst system disposed on the HC trap layer, said system comprising

a first catalyst layer disposed on the HC trap layer (i.e., a third layer containing a metal-based catalyst formed on the second layer" in claim 1), and

a second catalyst layer disposed on the second layer on the HC trap layer (i.e., "a fourth layer containing rhodium formed on the third layer" in claim 2);

wherein said first and second catalyst layers (i.e., the claimed third and fourth layers, respectively) comprise catalyst noble metals, respectively (i.e., see claims 2, 7, 8, 9).

U.S. '862 does not claim an amount of noble metal present in the second catalyst layer, per unit volume of carrier, being larger than an amount of noble metal present in the first catalyst

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layer, per unit volume of carrier.

The same comments with respect to Ishii et al. and Frestad et al. apply (see final Office Action mailed October 31, 2005).

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 25-28 and 30-39 have been considered but are moot in view of the new ground(s) of rejection, necessitated by amendment.

10. Regarding the obvious type double patenting rejection of instant claims 25-28 and 30-39 over claims 1-13 of U.S. Patent No. 6,503,862 in view of Ishii et al. (EP 918 145) and Frestad et al. (US 4,975,406), Applicant argues that the claims are patentable because Ishii '145 fails to disclose portions X and Y forming a dual-layered catalyst system. The Examiner respectfully disagrees. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Ishii '145 was only cited as a secondary reference to the primary reference of U.S. Patent No. 6,503,862, in order to teach the missing claim limitation of a second catalyst layer having an amount of noble metal present in the second catalyst layer, per unit volume of carrier, that was larger than an amount of noble metal present in the first catalyst layer, per unit volume of carrier.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449.

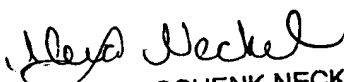
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The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung  
June 21, 2006

  
ALEXA DOROSHENK NECKEL  
PRIMARY EXAMINER